

ROCKY FLATS PLANT
EMD OPERATING
PROCEDURES MANUAL

Manual No
Procedure No
Page
Effective Date
Organization

5-21000-OPS-GT
Table of Contents, Rev 8
1 of 3
12/02/91
Environmental Management

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

VOLUME I FIELD OPERATIONS (FO)
VOLUME II GROUNDWATER (GW)
VOLUME III GEOTECHNICAL (GT)
VOLUME IV SURFACE WATER (SW)
VOLUME V ECOLOGY (EE)
VOLUME VI AIR (AP)

This is a
CONTROL DOCUMENT
EG&G — ROCKY FLATS PLANT
ENVIRONMENTAL MANAGEMENT DEPARTMENT

TABLE OF CONTENTS
FOR VOLUME III GEOTECHNICAL

This is a RED Stamp

<u>New Proc No</u>	<u>Old Proc No.</u>	<u>Title</u>	<u>Rev No</u>	<u>Effective Date</u>
GT 01	3 1	Logging Alluvial and Bedrock Material	1	8/30/91
DCN 91 01		Recording lithologic descriptions and securing core boxes	1	11/15/91
GT 02	3 2	Drilling and Sampling Using Hollow Stem Auger Techniques	1	8/30/91
DCN 91 01		Unconsolidated core samples need not be peeled before sampling	1	10/29/91
DCN 91 02		Correction of well location for low Alluvial thickness	1	11/6/91
DCN 91 03		Ten foot long core barrels	1	11/15/91
GT 03	3 3	Isolating Bedrock From the Alluvium with Grouted Surface Casing	1	8/30/91
DCN 91 01		Change in criteria for cement grouting	1	10/02/91
DCN 91 02		Grout procedure clarification	1	10/28/91

ADMIN RECORD

REVIEWED FOR CLASSIFICATION/UCM

By F J Curran U-20

Date 1-6-92

A-SW-000201

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GT 04	3 4	Rotary Drilling and Rock Coring	1	8/30/91
DCN 91 01		Core barrel decontamination	1	10/22/91
DCN 91 02		Clarification of measuring tape decontamination requirements	1	10/29/91
GT 05	3 5	Plugging and Abandonment of Boreholes	1	8/30/91
DCN 91 01		Surface casing classification	1	10/22/91
GT 06	3 6	Monitoring Wells and Piezometer Installation	1	8/30/91
DCN 91 01		Industry Standard is 1 foot into Bedrock	1	10/15/91
DCN 91 02		For the Sitewide Program, Claystone Smearing does not seem to be a problem	1	10/15/91
DCN 91 03		Superseded by DCN 91 06	1	11/08/91
DCN 91 04		Low Alluvial thickness wells	1	11/06/91
DCN 91 05		Superseded by DCN 91 08	1	11/06/91
DCN 91 06		Change in filter pack guidance	1	11/08/91
DCN 91 07		Decontamination for site-wide geological characterization	1	11/15/91
DCN 91 08		Figure replacement (GT 6-1)	1	11/15/91
GT 07	3 7	Logging and Sampling of Test Pits and Trenches	1	8/30/91
GT 08	3 8	Surface Soil Sampling	1	8/30/91
DCN 91 01		Clarification supplementation of GT 08 - Surface Soil Sampling	1	11/26/91
GT 09	3 9	Soil Gas Sampling and Field Analysis	1	8/30/91

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GT 10	3 10	Borehole Clearing	1	8/30/91
GT 11	3 11	Plugging and Abandonment of Wells	1	8/30/91
GT 15	3 15	Geophysical Borehole Logging	1	8/30/91
DCN 91 01		No Hole will be left Unlogged at the end of the day	1	10/15/91
GT 17	3 17	Land Surveying	1	8/30/91
GT 18	3 18	Surface Geophysical Surveys	1	8/30/91
GT 19	3 19	Field Gas Chromatographs	1	8/30/91
GT 20	3 20	Procedures for Soil Interstitial Water Sampling and Sampler Installation	1	8/30/91

ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT DOCUMENT CHANGE NOTICE (DCN)

PRESS FIRMLY AND PRINT LEGIBLY OR TYPE PROPOSED CHANGES TO INSURE DUPLICATE IS MADE ON ALL COPIES

DOCUMENT NUMBER Procedure No GT.8.5-21000-OPS-GT

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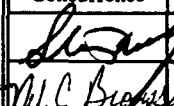
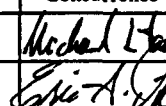
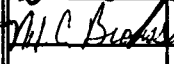
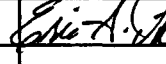
TITLE Surface Soil Sampling		DATE November 22, 1991	DCN NUMBER GT 8-91-1
EXPIRES <u>February 25, 1992</u>			
LIMITATIONS <u>OU2</u>			
Item Number	Page	Step or Paragraph	(Use DCN CONTINUATION SHEET for additional space) ENVIRONMENTAL CHANGES <i>This is a field stamp</i>
(1)	4 of 16	Section 5 0, Paragraph 3	Soil classification according to GT 1 will not be required Particle size analyzes will be conducted according to Attachment 1 0, Surficial Soil Sampling Plan of the OU2 Work Plan (Document Number 21100-WP-OU02 1, RO)
(2)	5 of 16	2nd Bullet	Glass containers may be used instead of stainless steel or plastic Since the composite volume collected from 25 subsample points generally amounts to about 16 ounces (volume) or less, 16-ounce glass jars may be used for composite laboratory samples Two-ounce glass jars may be used for radiological screening samples
(3)	N/A	Subsection 5 2 1	SOP GT 8 does not currently address the procedure to be used for obtaining QA duplicate samples Duplicate samples will be obtained by offsetting the primary subsample location 0.5 to 2 feet upwind and placing the duplicate subsamples in a separate jar The duplicate sample will be composited and containerized following the same procedures as for the primary sample The frequency of duplicate samples is defined in the Field Sampling Plan (FSP) or the Quality Assurance Addendum (QAA)
(4)	N/A	Subsection 5 2 1	<p>SOP GT 8 does not currently address a procedure to be used for determining and documenting the locations of the 25 subsample points within each sample plot The target locations of the 25 subsample locations within each sample plot will be described by an evenly spaced grid For example, for 10-acre plots, the subsample target locations are described by a 132-foot grid The subsample points around the periphery of the plot are 66 feet from the plot edge, or 132 feet from the subsample points in the adjacent plot Similarly, for 2.5-acre plots, the spacing is reduced to 66 feet with the peripheral points 33 feet from the plot boundary See Item Number (5) of this DCN for an example of a typical 10-acre plot layout Numbering of the subsample points will start at the first point sampled (which will be at the southwest corner unless site features dictate a different starting point), and continue consecutively up one row and down the next until all 5 rows of 5 points each have been sampled</p> <p>All plot corners will be surveyed and permanently marked (see SOP GT 17, Land Surveying) Therefore, the reference point for any given plot may consist of any one of the corners, however, preference will be given to the southwest corner to conform with computer plotting routines. The reference point used will be documented on Form 3 8A</p> <p>The subsample points will be surveyed by taping, use of a measuring wheel, or by pacing, combined with the use of a Brunton compass Regardless of the method used, survey checks using the following procedures will be made to verify the accuracy of the measurements For an evenly spaced grid where none of the subsample points are offset, bearings will be measured with the Brunton compass from subsample points 1, 3, 5, 7, 8, 9, 11, 13, 15, 17, 18, 19, 21, 23, and 25, to the nearest plot corner marker when the corner marker is within sight and when the subsample point has not been offset. In addition, distance measurements will be made to the plot corners and boundaries from subsample points 5, 10, 15, 20, and 25 Distance measurements will be made by pacing the perpendicular distance from the subsample point to the boundary and from this location to the plot corner The purpose of the bearings and distance measurements is to enable documentation of the accuracy of the subsample point locations See Item Number (5) of this DCN for an example of how these checks will be documented If any of the survey checks identifies a discrepancy of more than 30 feet, the subsample points will be remeasured until the survey checks indicate all subsample points are within 30 feet of their planned locations</p>

**ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
DOCUMENT CHANGE NOTICE (DCN)
(Continued)**

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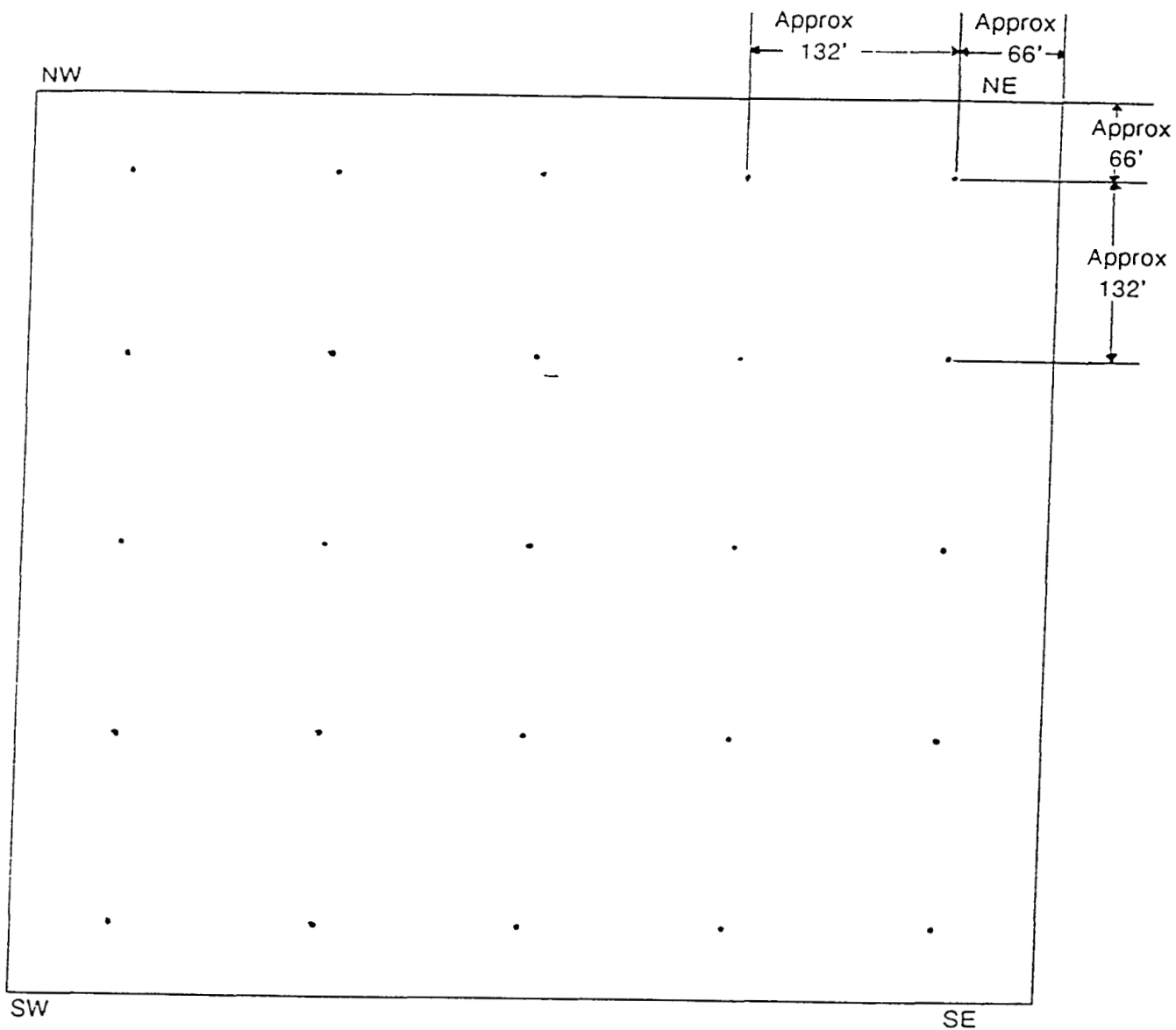
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TITLE Surface Soil Sampling			DATE November 22, 1991		DCN NUMBER GT 8-91-1		
EXPIRES <u>February 25, 1992</u>							
LIMITATIONS <u>OU2</u>							
Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for additional space)				
(5)	16 of 16	Section 8 0 Form GT 8B	The planned locations of subsample points may be revised when obstacles are encountered within the plot. If pavement, disturbed ground, or other obstacles are present that would jeopardize sample integrity or endanger the samplers, the grid may be adjusted to allow the 25 subsamples to be obtained from a smaller area. When practical, the originally planned grid spacing will be maintained, however, this can not be done if a relatively large portion of a plot can not be sampled. All offset locations will be documented on a sketch complete enough to be able to relocate each subsample location within an accuracy of 30 feet. Survey checks as described above will be made to document the accuracy of the offset subsample points. See Item Number (5) of this DCN for an example of how offsets are documented.				
(6)	16 of 16	Section 8 0	Form GT 8B will be updated to include a supplement. The Supplement to Form GT 8B and an example of a correctly completed form is attached to this DCN. An RFEDS Surface Soil Sample Collection Form (FO 14E) will be used to document input of data into RFEDS.				
Justification (Reason for change - Provide numbers to reference corresponding items above)							
(1) To maintain consistency with OU2 Alluvial Work Plan (2) To be consistent with QAPjP (3) To supplement SOP (4) To supplement SOP (5) To supplement Form GT 8B (6) For input to RFEDS							
Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
	OAPM	X	11/26/91		EM/ERD	X	11/25/91
	EOM	X	11-25-91		EM/RPD	X	11/25/91
13 Approval of Responsible Manager			14 Date	15 Is Posting Required		16 If Yes, by what date	17 Date Posted

ROCKY FLATS FIELD ACTIVITIES REPORT SURFACE SOIL SAMPLING

PROJECT NUMBER _____ DATE _____
PROJECT NAME _____
PLOT NUMBER _____ SAMPLE NUMBER _____
SAMPLERS _____



COORDINATES OF SW CORNER

N
E

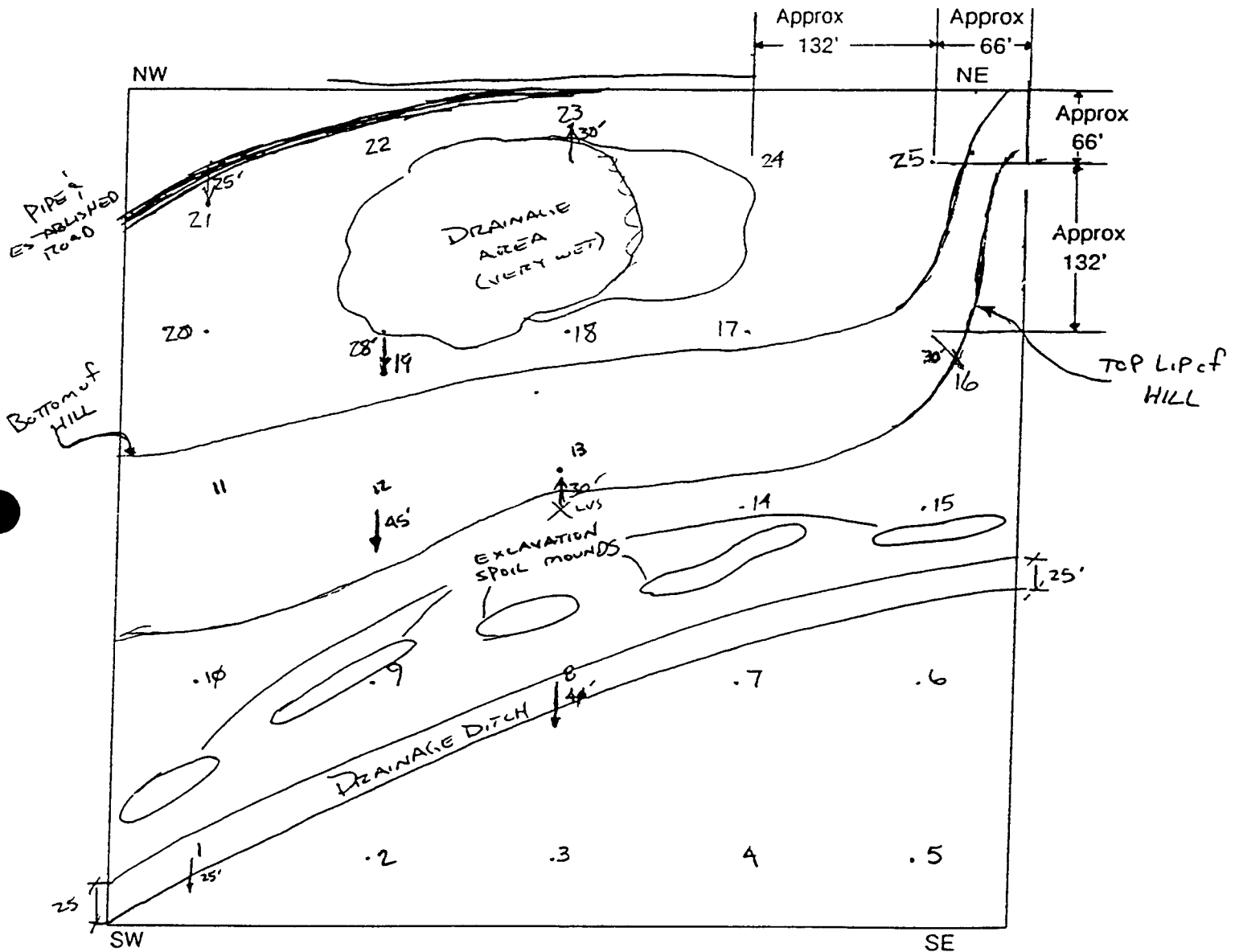
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T2=	T7=	T12=	T17=	T22=
T3=	T8=	T13=	T18=	T23=
T4=	T9=	T14=	T19=	T24=
T5=	T10=	T15=	T20=	T25=

ROCKY FLATS
FIELD ACTIVITIES REPORT
SURFACE SOIL SAMPLING

SUPPLEMENT TO
FORM GT.8B

EXAMPLE

PROJECT NUMBER Δφφ0 DATE 7/22/91
PROJECT NAME OUX SURFACE SOIL SAMPLING
PLOT NUMBER PLOT XX SAMPLE NUMBER SSΔφφXφXX002
SAMPLERS LVS JA



COORDINATES OF SW CORNER
N X0X0X
E 0X0X0

T1= φ8A1	T6= φ854	T11= φ913	T16= φ935	T21= φ957
T2= φ842	T7= φ891	T12= φ917	T17= φ944	T22= 1005
T3= φ844	T8= φ903	T13= φ920 ^{WS}	T18= φ950	T23= 1010
T4= φ846	T9= φ905	T14= φ922	T19= φ952	T24= 1011
T5= φ849	T10= φ908	T15= φ925	T20= φ954	T25= 1021

RFEDS

SURFACE SOIL SAMPLE COLLECTION FORM

Project Number	EMAD	Name	EMAD
Sample Number		Type	SO
North or Y		East or X	
Boring Number			

Collection Date	/ /	Quarter	Dry
Collection Time			
Sample Location			
Composite	(Y/N)		
Composite Desc			
QC Type		Partner	
Collection Method			

Sample Team Leader	
Member	
Member	

Volume Collected	Units
Prepared By	

Project Number	EMAD	Name	EMAD
Sample Number			

Depth of take	Start	End
		in
		in
		in
		in

Headspace Reading

Comments